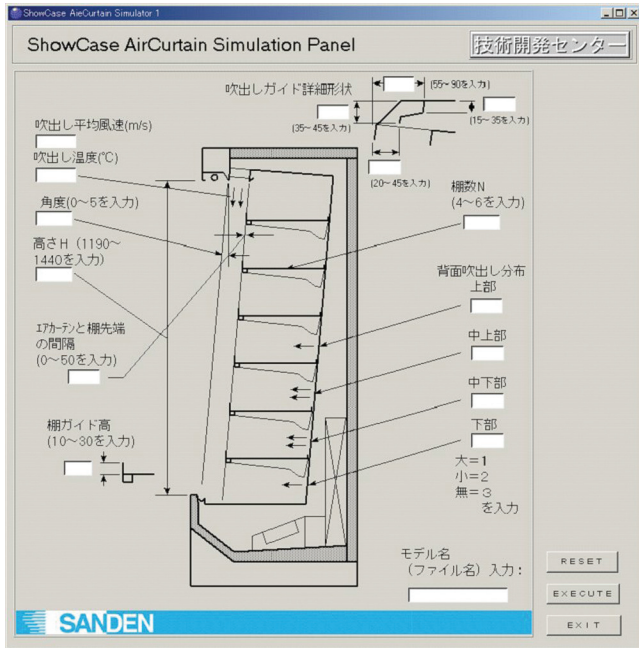


# GridgenApp

A Unique Gridgen® Application



## SANDEN Uses Glyph for Refrigeration Air Curtains



GUI control panel for SANDEN'S script.

We decided to integrate our expertise and know-how of CFD modeling of air curtains into a CFD software tool that can be used by mechanical designers to study numerous design parameters and to check the performance of new designs before actually building prototypes for testing. For the grid generation part of the software tool, we used the Glyph scripting language in Gridgen. We developed a program with a graphical user interface (GUI) that allows easy setting of design parameters such as outlet air velocity and its profile, geometry of flow control plates, air outlet angle, height of outlet opening, number of shelves, distances from the air curtain outlet to the shelves, height of shelf tips, profile of back side air flow velocity, and so on. Analysis conditions are also entered in the GUI in order to output control files for the CFD solver. By this system, we succeeded in compressing the time needed for generation of analysis grid for a multiple shelf open showcase from 3-5 days to as short as several minutes. Based on this success, we are planning to develop and use similar systems for different types of showcase designs such as flat type showcase and double or triple air curtains.

Courtesy of SANDEN Corporation, R&D Technical Headquarters, FACE Strategy Center / Mr. Akira Shimizu.

SANDEN Corporation produces refrigerated open showcases. Demands for saving energy in open showcases are increasing every year. The focus of development is on improving air curtain performance because a significant part of the heat load imposed on showcases comes from heat flowing through the air curtain. Design of air curtains has been conventionally based on results of repeated experiments using physical test models in different designs. One of the recent trends is to reduce the number of experiments by using CFD technology to predict the product's performance. However, creating CFD analysis models of showcase air curtains in different design requires considerable time and expertise because of numerous design parameters needing adjustments.